

REMARKS/ARGUMENTS

Claims 1-2 and 4-26 remain pending in the instant application. Claims 12-19 and 21-25 are withdrawn from consideration pursuant to Examiner's Restriction Requirement and Applicant's election. Favorable reconsideration is kindly requested.

New Claim

New claim 26 is presented. Claim 26 depends from independent claim 1, and reads on the elected invention. Support for claim 26 can be found generally throughout the original specification as filed, for example at p. 9, lines 4-9. No new matter has been added.

Claim Objection

Claim 20 is objected to in the most recent Office Action for depending upon rejected claim 3. As construed by the Examiner, claim 20 is amended above to depend from independent claim 1. No new matter has been added. Favorable reconsideration and withdrawal of the objection is kindly requested.

Rejection under 35 U.S.C. § 112

Claims 1-2, 4-11 and 20 are rejected under 35 U.S.C. § 112, second paragraph, being indefinite.

The Office Action avers that the phrase "in countercurrent through a hot slag channel" is indefinite, lacking a frame of reference for the term 'countercurrent'. Applicant respectfully submits that one of ordinary skill in the art, in light of the instant specification, would be well apprised of the meaning of "countercurrent", i.e., in an opposite (or counter) direction of slag flow (or current) through the hot slag channel. The standard to be applied is whether the claim would apprise one of ordinary skill in the art of its scope. "If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, Section 112 demands no more." *Solomon v. Kimberly-Clark Corp.*, 16 F.3d 1372, 55 USPQ2d 1279, 1282 (Fed. Cir. 2000).

However, without acquiescing in the rejection, and in order to avoid any potential for misunderstanding, claim 1 is amended above to recite "passing the residual gases in ~~countercurrent~~ through a hot slag channel in countercurrent to a flow direction of hot slag

therethrough” (markup per 37 C.F.R. § 1.121). Support for this amendment can be found generally throughout the original specification as filed, for example at p. 7, lines 29-34, p.8, line 36 – p. 9, line 9, and Fig. 1, among other places. No new matter has been added. This amendment is not offered because it is necessary to patentability, nor does it alter the scope of the amended feature as previously presented. The amendment is merely tangential to the subject matter of the claim.

The Office Action objects to the term “the slag granules” of claim 1 as lacking proper antecedent basis. In view of claim 1 reciting “a granule/water mixture”, the objected phrase is amended as “~~slag~~ granules” (markup per 37 C.F.R. § 1.121). The amendment is merely tangential to the subject matter of the claim.

The Office Action objects to the phrase “the water which has been separated off in the dewatering installation” of claim 10 as lacking sufficient antecedent basis. Claim 1, upon which claim 10 depends, recites “feeding... to a dewatering installation”. Inherently, a dewatering installation removes (separate[s] off) water, as one of ordinary skill would recognize. However, because the water separated off from the dewatering installation was not specifically enumerated earlier in claims 10 or 1, claim 10 is amended above to recite “~~the~~ water which has been separated off in the dewatering installation” (markup per 37 C.F.R. § 1.121). This amendment is not offered because it is necessary to patentability, nor does it alter the scope of the amended feature as previously presented. The amendment is merely tangential to the subject matter of the claim.

The Office Action objects to the phrase “the slag rate” of claim 11 as lacking sufficient antecedent basis. In response, claim 11 is amended above to recite “~~the~~ slag rate” (markup per 37 C.F.R. § 1.121). This amendment is not offered because it is necessary to patentability, nor does it alter the scope of the amended feature as previously presented. The amendment is merely tangential to the subject matter of the claim.

In light of these amendments and remarks, Applicant respectfully submits that the rejection has been obviated, and kindly requests favorable reconsideration and withdrawal.

Rejection under 35 U.S.C. §§ 102, 103

Claims 1-2, 4, 9-11 and 20 are rejected under 35 U.S.C. § 102(b) as anticipated by, or alternately under 35 U.S.C. § 103(a) as obvious over, Japanese Patent Publication No. JP 08-

245243 by Kiyoshi (“Kiyoshi”) taken alone. Applicant respectfully traverses the rejection, for at least the following reasons.

The Office Action cites Kiyoshi as allegedly disclosing “The discharged gasses (6G₃) are directed in ‘countercurrent’ or recycled back to the slag blast furnace (2) wherein the gasses are burned (¶[0070]) during formation of hot slag or ‘through a hot slag channel’.” (Office Action, p. 5) Applicant respectfully disagrees.

Kiyoshi discloses a process and device comprising water granulation of liquid slag from a blast furnace, the treatment of the resulting vapor and gases by means of condensation. In a primary 21 and a secondary cooling 22 the vapors/gases are treated. Finally, by means of a wet electrostatic precipitator 7 water droplets are removed. The remaining gases (comprising SO₂ and H₂S) are introduced into the hot blast and are thus led into the blast furnace (see paragraph [0041], detailed description). The sulfur compositions are treated by means of the lime in the blast furnace and will be discharged from the blast furnace with the slag.

Applicant respectfully submits that even the Office Action recognizes the liberties it takes with the present claim language, for example where it uses “ ” quotation marks around language recited in the present claims when alleging that the claimed features are present in Kiyoshi, despite the apparent differences. In fact, the relationship of Kiyoshi to the presently claimed structure is remote at best, and certainly not anticipatory.

It is well established that “claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their ‘broadest *reasonable* interpretation.’ ” *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir., 1983) (emphasis in original) (quoting *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976)). Moreover, “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Therefore, taking, as the Office Action does, “countercurrent” to mean simple recycling where there is no interaction between the residual gasses and the hot slag channel, removes the claim language from the specification of which it is a part, and distorts it beyond recognition to one of ordinary skill in the art for the result-oriented purposed of crafting a rejection.

Further, for example where claim 1 recites “passing the residual gases through a hot slag channel in countercurrent to a design flow direction of hot slag therethrough”, this feature is not met by the disclosure in Kiyoshi that residual gasses are recycled to the blast furnace. Residual

gasses of Kiyoshi are not led through a hot slag channel in countercurrent to a design flow direction of hot slag therethrough. The Office Action cites to no corresponding structure in Kiyoshi through which hot slag flows in one direction and the residual gasses flow in another.

Accordingly, Kiyoshi clearly does not present that the residual gases (containing H₂S) are passed into the slag channel in countercurrent to the slag in the slag channel whereby the H₂S is oxidized to SO₂. At best, Kiyoshi provides an alternative solution for the treatment of hazardous gas components, which are fed back into the blast furnace. Therefore Kiyoshi does not anticipate independent claim 1.

The Federal Circuit has recently reiterated the stringed standard for anticipation, stating “Because the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’ ” *Net MoneyIN, Inc., v. Verisign, Inc.*, 88 U.S.P.Q.2d 1751 (Fed. Cir., 2008) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

The Office Action avers in the alternative that claim 1 is obvious over Kiyoshi, in that the chemical conversion burning H₂S to form SO₂ would be inherent or obvious. However, even presuming this point for the sake of argument, the asserted point of inherency in Kiyoshi does not ameliorate the above-noted deficiencies of the reference with respect to claim 1. Namely, Kiyoshi does not disclose a slag channel, nor that that residual gasses are passed through the slag channel in countercurrent to a design flow direction of hot slag therethrough.

Therefore, Applicant respectfully submits that claim 1 is patentably distinguished over Kiyoshi, as disclosed or as putatively modified in the Office Action. Claims 2, 4, 9-11 and 20 each depend, either directly or indirectly, from independent claim 1. Moreover, Applicant notes that claim 9 depends from claim 7, and incorporates by reference the features of claim 7. The Office Action does not allege that claim 7 is likewise anticipated or made obvious by Kiyoshi alone, but rather relies upon an apparent combination with Azuma and Faber (as noted below) to purportedly reach claim 7. In any case, although claims 2, 4, 9-11 and 20 are each separately patentable, in the interest of brevity, they are offered as patentable for at least the same reasons as their underlying independent base claim 1. Applicant respectfully submits that the rejection has been obviated, and kindly requests favorable reconsideration and withdrawal.

Rejection under 35 U.S.C. § 103

Claims 6 and 8 are rejected under 35 U.S.C. § 103(a), as obvious over Kiyoshi taken alone. Claims 5 and 6 are rejected under 35 U.S.C. § 103(a), as obvious over Kiyoshi in view of U.S. Patent Application Publication No. 2004/0237861 by Azuma, *et al.* (“Azuma”) in view of U.S. Patent No. 5,540,895 to Faber (“Faber”). Applicant respectfully traverses the rejection, for at least the following reasons.

Claims 6 and 8 each depend, either directly or indirectly, from independent claim 1. Moreover, Applicant notes that claim 8 depends from claim 7, and incorporates by reference the features of claim 7. The Office Action does not allege that claim 7 is likewise anticipated or made obvious by Kiyoshi alone, but rather relies upon an apparent combination with Azuma and Faber to purportedly reach claim 7. In any case, even presuming that Kiyoshi were putatively modified as proposed in the Office Action, the modification would not ameliorate the above-noted deficiencies with respect to underlying independent base claim 1. Therefore, although claims 6 and 8 are each separately patentable, in the interest of brevity, they are offered as patentable for at least the same reasons as their underlying independent base claim 1.

However, the rejection of claim 6, for example, is based upon the speculation that fan 26 of Kiyoshi produces a subatmospheric pressure at the discharge point. Applicant respectfully disagrees. Initially, “[The Board] may not... resort to speculation, unfounded assumptions, or hindsight reconstruction to support deficiencies in its factual basis.” *In re GPAC, Inc.*, 57 F.3d 1573, 35 USPQ2d 1116, 1123 (Fed. Cir. 1995). Applicant submits that it is only safe to deduce that, in Kiyoshi, in order to generate a flow of gasses through precipitator 7, fan 26 induces a lower pressure at its inlet than exists at the inlet of the precipitator. Nothing more can be assumed, particularly with respect to the ambient pressure, without resort to impermissible and unfounded speculation.

Alternately, the Office Action avers that the pressures would be subject to “routine process optimization” by one of ordinary skill in the art. Applicant respectfully disagrees. The Office Action points to no teaching or suggestion in Kiyoshi (nor elsewhere) that the operating pressure is a known result-effective variable. *See*, M.P.E.P. § 2144.05(II)(B), 8th Ed., Rev. 6 (Sept. 2007). Therefore, the Office Action sets for no apparent reason for one of ordinary skill in the art to seek to optimize the operating pressure.

As to claims 5 and 6, for the purposes of this response, and in light of the text of the Office Action at claim 10, Applicant presumes that a further non-final Office Action would reject claim 7 as obvious on the same grounds as claim 5. However, claims 5 and 7 each depend directly from independent claim 1. Even presuming that Azuma and Faber teach all that is attributed to them, and further presuming that there is some apparent reason for one of ordinary skill in the art to combine the references as proposed in the Office Action, the proposed combination would not ameliorate the above-noted deficiencies of Kiyoshi with respect to underlying independent base claim 1. Therefore, although claims 5 and 7 are each separately patentable, in the interest of brevity, they are offered as patentable over Kiyoshi, Azuma and Faber, taken singly or in any combination, for at least the same reasons as underlying independent base claim 1.

Therefore, Applicant respectfully submits that the rejection has been obviated, and kindly requests favorable reconsideration and withdrawal.

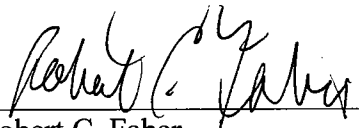
Conclusion

In light of the foregoing, Applicant respectfully submits that the application is in condition for allowance. Early and favorable consideration of the present application is earnestly solicited.

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Respectfully submitted,



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